

REMARKS

The Office Action mailed July 13, 2004 has been received and the Examiner's comments carefully reviewed. Claim 1 has been amended as supported by, for example, page 4, lines 29-37 and page 5, lines 1-2, of the present specification. Favorable reconsideration of this application is requested in view of the following remarks.

Claim Rejections - 35 USC § 102

In the Office Action, claims 1 and 2 have been rejected under 35 U.S.C. 102(b) as being anticipated by Shimakawa et al., US Patent 5,817,435.

Claim 1 recites, among other things, a plurality of sealed cells bound by two end plates of a combined battery under a condition that a balance position P between at least one expanded cell and a remaining compressed cell in an F-S curve is set to be equal to or lower than a threshold value at which no more than a predetermined amount of irreversible deformation is caused in the battery container, based on a number and a compressibility of the plurality of cells and stiffness of the battery container.

Unlike the invention of claim 1, Shimakawa fails to disclose or suggest a combined battery wherein the cells are bound under the condition recited in claim 1. The Shimakawa reference focuses on the composition of the resin used for the battery casing to enhance the mechanical strength in order to prevent the destruction of the casing due to factors such as creep deformation or fatigue after a long-term use or repetitive charging and discharging of the battery. The cells of the combined battery in Shimakawa are bound strongly so as to not be detached from each other due to the expansion of an electrode group and an increase in internal pressure of the battery. And, the dimensions of the end plates and the binding members are determined by the expansion force of the electrode group, the internal pressure, and the number of stacked cells. Please see column 6, lines 20-24 of Shimakawa.

The Shimakawa reference assumes that the internal pressures of all the cells in the battery are increased simultaneously and never contemplates the situation where the internal pressure of only one or less than all the cells of the plurality is increased. According to the present invention, in the case where the internal pressure of only one or several cells among a plurality is

increased, only the cells with their internal pressure increased expand and compress other cells whose internal pressure is not increased. As a result, the expanded cells further expand and may cause irreversible deformation of the battery container. Please see page 4, lines 29-35 of the present specification.

The invention of claim 1 recites a combined battery wherein the cells are bound under a condition that takes into account the aforementioned issue. According to the invention of claim 1, the cells of the battery must be bound taking into account not only the number of cells but the compressibility of the cells and the stiffness of the battery container in order to not exceed the limit of a predetermined amount of irreversible deformation of the battery container.

Shimakawa fails to disclose or suggest a battery whose cells are bound under the same considerations as those featured in claim 1 and, for at least this reason, claim 1 is believed to be patentable over Shimakawa et al.

Claim 2 depends from claim 1 and is believed to be patentable over Shimakawa for at least the same reasons specified above with respect to claim 1.

In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

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